

of triglycols for the purpose of killing viruses/bacteria/fungi, and further do not teach specific aromatic or aliphatic carboxylic acids, or a method of combatting microorganisms. The Moberg reference allegedly teaches antimicrobial/disinfectant compositions comprising carboxylic acids and propylene glycol (a diol) and butylene glycol to combat microorganisms. The Examiner's rationale is that it would have been obvious to combine the diol of Moberg in the compositions of the German references because "diols are known to be useful in antimicrobial compositions".

Regarding composition claims 11-21 in particular, the Examiner has taken the position that the preamble and last phrase of claim 11 is a recitation of "intended use (the fact that the composition is a phytopathogenic composition and/or that is employed in combating pathogens)," which does not further limit the claim.

Regarding method claim 22, the Examiner has argued that "two agents known to be useful in a method of combating microorganisms would be reasonably expected to be useful in combating pathogenic microorganisms regardless of the host" and "the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious." (citing Ex parte Obiaya)

Having carefully considered the Examiner's position, we believe that the Examiner has not made a prima facie case for obviousness using these three references, and submit furthermore that the correct standards for obviousness have not been applied.

#### No prima facie case for obviousness

First, with respect to composition claims 11-21, the last phrase of independent claim 11 is not mere "intended use", but an affirmative recitation of an advantage or property that must be present in our invention: "wherein said agent, when contacted with phytopathogenic organisms present on plants or on hard surfaces, kills or inactivates the phytopathogenic organisms without damaging the plants and without leaving phytotoxic residues on the hard surfaces." (emphasis added) Thus, this property involves the combination of killing/inactivating plant pathogens both on plant and hard non-plant surfaces + no damage to plant + no phytotoxic residue on hard surfaces.

The C.C.P.A. has repeatedly stated: “[E]very limitation positively recited in the claim must be given effect in order to determine what subject matter that claim defines.” In re Wilder, 429 F.2d 447 (C.C.P.A. 1970). Therefore, this is a limitation that **MUST** be given weight when considering patentability of our invention over the art. All claim limitations must be considered, especially when they are missing from the prior art, as is the case here.

Regarding the compositions of claims 11-21, as well as the method of claim 22, there is no suggestion in this prior art that any of the compounds in these three references are useful against phytopathogenic organisms. We note the Examiner’s comment in the Office Action that “two agents known to be useful in a method of combating microorganisms would be reasonably expected to be useful in combating pathogenic microorganisms regardless of the host”. However, it remains that none of these references suggest phytopathogenicity, which is required in our claims.

In addition, there is no suggestion in the prior art of the advantage of the instant invention—namely, the advantageous **combination** of killing/inactivating plant pathogens both on plant and hard non-plant surfaces + no damage to plant + no phytotoxic residue on hard surfaces. The citation to Obiaya is, we believe, an incorrect application of that case. The advantage of this particular combination of anionic surfactants, aliphatic and aromatic carboxylic acids, and mono-di-and/or triglycols does not “flow naturally from following the suggestion of the prior art” because there is no suggestion in any of the references cited even of the problem solved by our invention, much less use of the prior art compounds to kill plant pathogens and surrounding hard surfaces without damaging the plants.. Thus, here, the prior art teaches neither the problem solved by our invention, nor the source of the solution. This is true for both the compositions claims and the method claim. This alone is sufficient to establish nonobviousness of our claims over this art.

Standard for obviousness not correctly applied

Furthermore, even assuming for the sake of argument that this advantageous property is inherent in this particular combination of agents, obviousness and inherency are distinct concepts. The C.C.P.A. has stated that “the inherency of an advantage and its

obviousness are entirely different questions. That which may be inherent is not necessarily known. **Obviousness cannot be predicated on what is unknown.**” In re Spormann, 363 F.2d 444, 448 (C.C.P.A. 1966) (emphasis added). *See also In re Dillon*, 919 F.2d 688 (Fed. Cir. 1990). An obviousness rejection based on what is allegedly inherent in the prior art cannot stand when there is no supporting teaching in the prior art. “[W]hen an examiner relies on inherency, it is incumbent on the examiner to point to the ‘page and line’ of the prior art which justifies an inherency theory.” Ex parte Schricker, 56 USPQ 2d 1723, 1725 (B.P.A.I. 2000). Here, the prior art is **silent** about the advantages of combining anionic surfactants, aliphatic carboxylic acids, aromatic carboxylic acids, and mono-di-and/or triglycols in killing/inactivating plant pathogens both on plant and surrounding hard surfaces without damaging the plant and without leaving phytotoxic residue on surrounding hard surfaces.

Consequently, no one having ordinary skill in this art, with these references in hand, would have had any reason whatsoever to combine anionic surfactants, aliphatic carboxylic acids, aromatic carboxylic acids, and mono-di-and/or triglycols with any reasonable expectation of success in killing/inactivating plant pathogens both on plant and surrounding hard surfaces without damaging the plant and without leaving phytotoxic residue on surrounding hard surfaces. The critical inquiry is whether “there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.” Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 1462 (Fed. Cir. 1984). *See also In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991). These references, alone or combined, simply do not disclose or suggest the desirability of combining these particular ingredients to achieve a plant disinfecting agent having these properties, or convey to those of ordinary skill in the art a reasonable expectation of success in doing so.

Regarding all of claims 11-22, the Examiner appears to be merely focusing on the differences between the prior art and our claimed invention, and then to state that these differences themselves are obvious. However, this is not the correct standard for establishing obviousness. The claimed invention as a whole is to be considered. Lear Siegler, Inc. v. Aeroquip Corp., 733 F.2d 881 (Fed. Cir 1984) (obviousness requires an

evaluation "of the claimed invention as a whole, not merely the differences between the claimed invention and the prior art.").

Important technical differences between the art and our invention

We reiterate that our invention is something that is not taught by the prior art—a composition that has pronounced microbiocide effectiveness on plants and hard surfaces surrounding the plants, but which does not damage plants cells (including roots, stalks, leaves, blooms and fruits) even during a concentrated application of our composition, and does not leave phytotoxic residues on the hard surfaces.

While certain combinations of anionic tensides, aliphatic and aromatic carbonic acids as well as a few special heteroaromatic acids as described in the German references DE OS 3227126 and DE 3229097 may destroy or inactivate animals, bacteria and fungus, these disinfectants are designed for use in households and in the food sector. Moberg's mixtures are carbonic acids having up to 10 carbon atoms, or the corresponding salts, as well as terylenes that are useful as cleaning agents, disinfectants, surface treatments, impregnation preparations or for anti-microbiological treatment. Such agents are taught to be useful on human skin or surfaces such as wood.

This is an important point because the cell structure and metabolisms of plants and animals are completely different, and the ability of an agent to combat a human/animal germ (without injuring the human/animal) is no prediction that it will work effectively for plant germs (without injuring the plant). A preparation that may be used effectively on the skin of a baby and which produces no side effects, may cause severe damage and even destruction for a plant.

Someone having ordinary skill in this art would not find disinfectants useful for living cells reasonably comparable to disinfectants useful on non-living material (such as plastic). For instance, a living cell can be destroyed by a disinfectant, while a plastic surface of course cannot be. Thus, obviously, the effectiveness of a particular substance to disinfect non-living material can not generally be extrapolated to its effectiveness to disinfect living cells. Furthermore, for purposes of determining the effectiveness and usefulness of a disinfectant, animals (including humans) are not readily comparable to plants. For instance, the plant cell structure with its special cell wall is particularly thick

(0.1  $\mu\text{m}$  to several  $\mu\text{m}$ ), and thus stronger and more rigid than other membranes of biological organisms. A plant cell wall consists of cellulose, pectins and hemicellulose, which give it one of the basic properties of plants, namely that of rigidity (locality-bound). Surprisingly, bacteria cell walls show a greater similarity in the composition of the plant cell wall than, for example, human skin. The bacterial cell wall also consists of hemicellulose and pectins (in some cases also cellulose). Consequently, someone having ordinary skill in this art might reasonably expect that the compounds of Moberg, DE OS 3227126 and DE 3229097, designed for disinfecting humans and surfaces used or consumed by humans, might possibly combat such microorganisms, but may or may not be useful against phytopathogens and would even be likely to damage a plant treated therewith. In other words, no one would readily assume that such substances would also be effective against plant pathogens AND that such substances would be tolerated by plants without any symptoms. No microbiologist would make that jump, based simply on the information provided by these three references.

In conclusion, we respectfully submit that our claimed invention is clearly distinguished from anything taught or suggested by the cited references. Reconsideration of this rejection is therefore requested.

In summary, all of the Examiner's outstanding rejections and objections have been addressed, and the application is believed to be in allowable form. Notice to that effect is earnestly solicited.

If the Examiner has any questions or would like to make suggestions as to claim language, she is encouraged to contact Marlana K. Titus at (301) 762-8214 or (301) 924-9500

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Marlana K. Titus', with a stylized flourish at the end.

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